

Ref 116/08

- (**refuse** <agent\_id> <service\_name> <conversation\_id>  
<message\_id>)

**failure** The failure interface.

- (**failure** <agent\_id> <service\_name> <conversation\_id>  
5 <message\_id>)

**inform** The inform interface.

- (**inform** <agent\_id> <service\_name> <conversation\_id> <message\_id>)

### Agent Architecture

- 10 There follows a description of the design of the agent's internal negotiation deliberation mechanisms. Each agent in the scenario is assumed to be architecturally equivalent. Sections below are the detailed description of the components of this architecture.

### The Negotiation Reasoning Model

- 15 The reasoning model determines the agents behaviour in a given negotiation context. It is responsible for
- initiating negotiation to obtain a desired service
  - responding to proposals from other agents
  - determining when proposals should be accepted or rejected
  - 20 • and determining when counter-offers should be made and what these counter offers should be.

Negotiation has three reasoning components (see [1] for a formal specification) which are supported by information maintained in the agent models and the agent's  
25 working memory.

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1/16/08**Service Deployment**

The service architecture and agent-based implementation described enables direct flexibility in how the agents used to compose the Reverse Auction application described can be deployed. This has the effect that the agents could all be hosted  
5 by an ASH (Application Service Host) in a single or set of multiple servers or simply the intermediary agent could be hosted by an ASH leaving the owners of the buyer and seller agents to host their respective agent.

The form of interaction between the agents will remain constant irrespective of how distributed the agents are once deployed however, unless IP VPNs with  
10 guaranteed QoS (or alternative IP technology that enables guaranteed QoS such as MPLS) are used to connect the distributed agents there will be a non-deterministic delay in the delivery of bids and counter bids between the agents which will impact the results of the auction and may limit the competitiveness of a given remote agent as the order and timing of the bids is a key factor in the functionality of the auction  
15 process.

**Reverse Auction Protocols**

The technology described above enables a mechanism for generating bids based on configuration data and counter bids based on received bids in addition to the configuration data. The reverse auction concept describes the concept of  
20 combining potentially many peer buyers and sellers in a single auction (negotiation) such that the augmented negotiation power of the buyers and/or sellers can be used to derive gains generally attributed to bulk purchases in the traditional economic model.

The Interaction Use Cases discussed below represent the groups of agents  
25 that will interact with each other. The communications layer of the agent platform supports the exchange of messages between the agents in the forms illustrated in

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1/16/08User Interaction

User access to this advanced eCommerce which has a potentially globally distributed (made possible primarily by the Internet) set of participants (buyers, sellers, and intermediaries) will be possible, seamlessly from variety of devices ranging from next generation mobile phones, PDAs and Internet access devices via the use of the agent platform described in our previous Agent Enabling Technology patent application. In addition the basic distribution platform features have also been developed to enable user access via WAP enabled and/or HTML enabled GUIs.

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